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10/582,816

03/15/2007

Manfred Ratzsch

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28289 7590 01/21/2009  
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EXAMINER

HEINCER, LIAM J

ART UNIT

PAPER NUMBER

1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,816	<b>Applicant(s)</b> RATZSCH ET AL.	
	<b>Examiner</b> Liam J. Heincer	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 27-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-53 is/are rejected.
- 7) ☒ Claim(s) 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/2007 and 9/2008</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 31 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 31 requires that the "melamine resins are polycondensates partly or completely etherified with at least one of C<sub>1</sub>-C<sub>18</sub>-monoalcohols, dialcohols and polyalcohols of melamine and formaldehyde". This limitation is already present in claim 28 from which the claim depends.

Claims 46-50 are objected to because of the following informalities: Claim 46 is directed to a "process using a flame-retardant mixture". However, all the process limitations present in the claim are directed towards the steps of making rather than using the mixture. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 38, 39, 42, and 43 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 38, 39, 42, and 43 all recite the limitation "the synergistic agents". There is insufficient antecedent basis for this limitation in the claim. For the purpose of further examination, the claims are interpreted as requiring the addition of synergistic agents as a process step.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 28-31 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glade et al. (US Pat. 2,828,228) in view of Lopez (US Pat. 6,620,349).

Considering Claims 28, 31, and 33: Glade et al. teaches a flame resistant composition (1:14-15) comprising lignocellulosic fibers (3:38-42) and a flame resistant composition comprising a fire retardant and a melamine resin (4:7-47) where the melamine resin is preferably alkylated with methanol (2:24-26). Glade et al. also teaches the optimum amount of the fire retardant as being 10% by weight, and the optimum amount of the resin as being 15% by weight. Therefore, the amount of the flame resistant composition would be 25% by weight with a ratio of the fire retardant to the resin of 2:3, and the amount of fiber would be 75% by weight. After the solution of the flame resistant composition is cured on the fibers, the disclosed invention reads on the claimed limitations of a fire retardant immobilized on the lignocellulosic fibers (3:65-4:6).

Glade et al. does not teach the fire retardant as being boric acid or a salt thereof. However, Lopez teaches using boric acid or a salt thereof in a melamine resin containing flame retardant solution for treating cellulosic fibers (6:32-7:21). Glade et al. and Lopez are analogous art as they are concerned with the same field of endeavor, namely melamine based fire retardants for cellulosic fibers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the fire retardant of Lopez in the composition of Glade et al., and the motivation to do so would have been, as Lopez suggests, the boron compounds also function as insecticidal and fungicidal agents (6:54-55).

Considering Claims 29 and 35: Glade et al. teaches adding 2% by weight of a curing catalyst/a immobilizing agent to the composition (4:69-75).

Considering Claim 30: Glade et al. teaches preferably using cotton fibers (Example 1).

Considering Claim 34 Glade et al. teaches adding ammonium phosphate salts to the composition (4:58-66).

Claims 36- are rejected under 35 U.S.C. 103(a) as being unpatentable over Glade et al. (US Pat. 2,828,228) in view of Lopez (US Pat. 6,620,349).

Considering Claims 36 and 37: Glade et al. teaches a flame resistant composition (1:14-15) comprising lignocellulosic fibers (3:38-42) and a flame resistant composition comprising a fire retardant and a melamine resin (4:7-47) where the melamine resin is preferably alkylated with methanol (2:24-26) formed by impregnating/immersing cellulose fibers with an aqueous solution of the flame retardant composition at a solids content of 30%, followed by drying and curing the composite at ~143 °C (Example 1). Glade et al. also teaches the optimum amount of the fire retardant as being 10% by weight, and the optimum amount of the resin as being 15% by weight. Therefore, the amount of the flame resistant composition would be 25% by weight with a ratio of the fire retardant to the resin of 2:3, and the amount of fiber would be 75% by weight. Additionally, as Glade et al. does not explicitly give a temperature for the impregnation, it is being assumed that it is preformed at room temperature, which falls within the claimed range. After the solution of the flame resistant composition is cured on the

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fibers, the disclosed invention reads on the claimed limitations of a fire retardant immobilized on the lignocellulosic fibers (3:65-4:6).

Glade et al. does not teach the fire retardant as being boric acid or a salt thereof. However, Lopez teaches using boric acid or a salt thereof in a melamine resin containing flame retardant solution for treating cellulosic fibers (6:32-7:21). Glade et al. and Lopez are analogous art as they are concerned with the same field of endeavor, namely melamine based fire retardants for cellulosic fibers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the fire retardant of Lopez in the composition of Glade et al., and the motivation to do so would have been, as Lopez suggests, the boron compounds also function as insecticidal and fungicidal agents (6:54-55).

Considering Claims 38, 39, and 42: Glade et al. teaches adding ammonium phosphate salts to the composition (4:58-66).

Glade et al. does not teach the required order of mixing for the components. However, the selection of any order of mixing ingredients is *prima facie* obvious. See MPEP § 2144.04. Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have added the fire retardant composition in any order as there has been no showing of new or unexpected results.

Considering claim 40: Glade et al. teaches adding the resin and fire retardant at the same time (Example 2).

Considering Claim 41: Glade et al. does not teach adding the fire retardant after the melamine resin. However, the selection of any order of mixing ingredients is *prima facie* obvious. See MPEP § 2144.04. Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have added the fire retardant composition in any order as there has been no showing of new or unexpected results.

Considering Claim 43: Glade et al. teaches adding the catalyst with the resin (4:48-58).

Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glade et al. (US Pat. 2,828,228) in view of Lopez (US Pat. 6,620,349) and Hönel et al. (US Pat. 4,430,494).

Considering Claim 44: Glade et al. teaches a flame resistant composition (1:14-15) comprising lignocellulosic fibers (3:38-42) and a flame resistant composition comprising a fire retardant and a melamine resin (4:7-47) where the melamine resin is preferably alkylated with methanol (2:24-26) formed by impregnating/immersing cellulose fibers with an aqueous solution of the flame retardant composition at a solids content of 30%, followed by drying and curing the composite at ~143 °C (Example 1). Glade et al. also teaches the optimum amount of the fire retardant as being 10% by weight, and the optimum amount of the resin as being 15% by weight. Therefore, the amount of the flame resistant composition would be 25% by weight with a ratio of the fire retardant to the resin of 2:3, and the amount of fiber would be 75% by weight. Additionally, as Glade et al. does not explicitly give a temperature for the impregnation, it is being assumed that it is preformed at room temperature, which falls within the claimed range. After the solution of the flame resistant composition is cured on the fibers, the disclosed invention reads on the claimed limitations of a fire retardant immobilized on the lignocellulosic fibers (3:65-4:6).

Glade et al. does not teach the fire retardant as being boric acid or a salt thereof. However, Lopez teaches using boric acid or a salt thereof in a melamine resin containing flame retardant solution for treating cellulosic fibers (6:32-7:21). Glade et al. and Lopez are analogous art as they are concerned with the same field of endeavor, namely melamine based fire retardants for cellulosic fibers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the fire retardant of Lopez in the composition of Glade et al., and the motivation to do so would have been, as Lopez suggests, the boron compounds also function as insecticidal and fungicidal agents (6:54-55).

Glade et al. does not teach melt impregnating the fibers with the flame retardant composition. However, Hönel et al. teaches using a melt impregnation process to mix a melamine resin and cellulose fibers at a temperature between 100 and 140 °C (5:28-

50). Glade et al. and Hönel et al. are analogous art as they are concerned with a similar technical difficulty, namely impregnating cellulose fibers with melamine resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the melt impregnation process of Hönel et al. in the method of Glade et al., and the motivation to do so would have been, as Hönel et al. suggests, it is functionally equivalent to the wet method of Glade et al. (5:28-32). See MPEP 2144.06.

Considering Claim 45 Glade et al. teaches adding ammonium phosphate salts to the composition (4:58-66).

Claims 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glade et al. (US Pat. 2,828,228) in view of Lopez (US Pat. 6,620,349).

Considering Claims 46: Glade et al. teaches a flame resistant composition (1:14-15) comprising lignocellulosic fibers (3:38-42) and a flame resistant composition comprising a fire retardant and a melamine resin (4:7-47) where the melamine resin is preferably alkylated with methanol (2:24-26) formed by impregnating/immersing cellulose fibers with an aqueous solution of the flame retardant composition at a solids content of 30%, followed by drying and curing the composite at ~143 °C (Example 1). Glade et al. also teaches the optimum amount of the fire retardant as being 10% by weight, and the optimum amount of the resin as being 15% by weight. Therefore, the amount of the flame resistant composition would be 25% by weight with a ratio of the fire retardant to the resin of 2:3, and the amount of fiber would be 75% by weight. Additionally, as Glade et al. does not explicitly give a temperature for the impregnation, it is being assumed that it is preformed at room temperature, which falls within the claimed range. After the solution of the flame resistant composition is cured on the fibers, the disclosed invention reads on the claimed limitations of a fire retardant immobilized on the lignocellulosic fibers (3:65-4:6).

Glade et al. does not teach the fire retardant as being boric acid or a salt thereof. However, Lopez teaches using boric acid or a salt thereof in a melamine resin containing flame retardant solution for treating cellulosic fibers (6:32-7:21). Glade et al. and Lopez are analogous art as they are concerned with the same field of endeavor,



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namely melamine based fire retardants for cellulosic fibers. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the fire retardant of Lopez in the composition of Glade et al., and the motivation to do so would have been, as Lopez suggests, the boron compounds also function as insecticidal and fungicidal agents (6:54-55).

Considering Claims 47-49: Glade et al. teaches adding ammonium phosphate salts to the composition (4:58-66).

Glade et al. does not teach the required order of mixing for the components. However, the selection of any order of mixing ingredients is *prima facie* obvious. See MPEP § 2144.04. Therefore it would have been obvious to a person having ordinary skill in the art at the time of invention to have added the fire retardant composition in any order as there has been no showing of new or unexpected results.

Considering Claim 50: Glade et al. teaches adding the catalyst with the resin (4:48-58).

Claims 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnee et al. (GB 2152063) in view of Glade et al. (USA Pat. 2,828,228) and Hönel et al. (US Pat. 4,430,494).

Considering Claim 51: Schnee et al. teaches a molding composition comprising wood chips, a flame retardant mixture comprising melamine resin and boric acid, and a melamine binder (Example 2), that has been ground/granulated (Example 2). Schnee et al. teaches the filler, binder, and flame retardant mixture as each being present as a third of the composition (2:112-117) the melamine resin as being 25% of the flame retardant mixture and the boric acid as being 5% of the flame retardant compound.

Schnee et al. does not teach adding processing auxiliaries to composite. However, Hönel et al. teaches adding a one percent of a lubricant to a melamine resin cellulose composite (5:33-38). Schnee et al. and Hönel et al. are analogous art as they are concerned with a similar technical difficulty, namely impregnating cellulose fibers with melamine resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the auxiliary of Hönel et al. in the process of

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Schnee et al., and the motivation to do so would have been, as Hönel et al. suggests, to increase the processability of the composite (5:4-9).

Schnee et al. does not teach the melamine as being a etherification product. However, Glade et al. teaches using a methylated melamine in flame retardant mixture (2:24-26). Schnee et al. and Glade et al. are analogous art as they are concerned with the same field of endeavor, namely melamine based flame resistant coatings for cellulosic materials. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the etherified melamine of Glade et al. in the composite of Schnee et al., and the motivation to do so would have been, as Glade et al. suggests, it provides a excellent was durable fire retardant finish (1:45-61).

Schnee et al. teaches the lignocellulosic material as being 50% of the preglued composite (2:112-117). However, differences in concentration generally will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. See MPEP § 2144.05. As cellulosic filler is much less expensive then the resin material, a person having ordinary skill in the art at the time of invention would have considered the amount of filler to be a result effective variable. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the amount of filler through routine optimization, and the motivation to do so would have been to lessen the cost of the composite while maintaining the fire resistant aspects of the composition.

Schnee et al. does not teach the boric acid as being present in the claimed amount. However, Lopez teaches using boric acid in an amount of 5 to 25% by weight in a melamine based fire retardant composition (7:18-20). Schnee et al. and Lopez are analogous art as they are concerned with the same field of endeavor, namely fire retardants for lignocellulosic materials comprising melamine and boric acid. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used a higher level of boric acid, and the motivation to do so would have been, as Lopez suggests, to increase the fire resistance of the composition (6:54-55).

Considering Claim 52: Claim 52 is a product by process claim. “[E]ven though product-by-process claims are limited by and defined by the process, determination of

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patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. The product of modified Schnee et al. appears to be substantially similar to the claimed product, therefore it is considered taught by the art.

Considering Claim 53: Schnee et al. teaches pressing the composition (Example 2).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO Form 892.

### ***Double Patenting***

Applicant is advised that should claim 28 be found allowable, claim 31 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1796

LJH

December 22, 2008